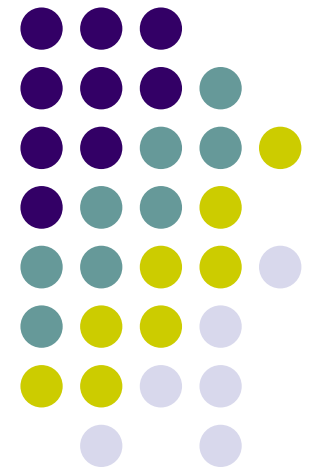


ADAMS Assignment 3

ME451: Kinematics and Dynamics of
Machine Systems

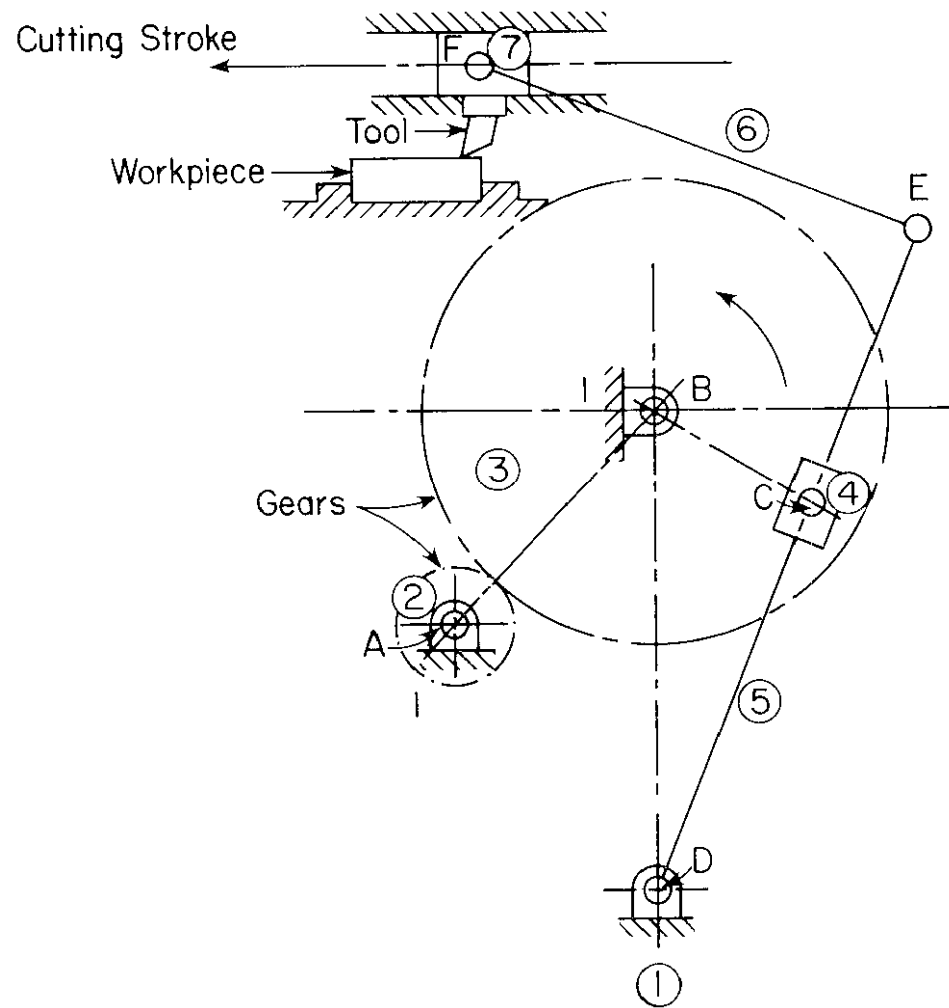


Turning in Your Assignment



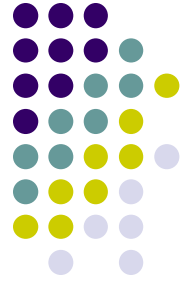
- Create a **single** PDF file, named “lastName_ADAMS_03.pdf” with the information listed on the last slide (including the supporting plots).
- Make sure your name is listed on that file.
- Drop the file in the appropriate Dropbox Folder (ADAMS_03) at Learn@UW

Reference Layout for a Quick Return Mechanism (Fig. 1)

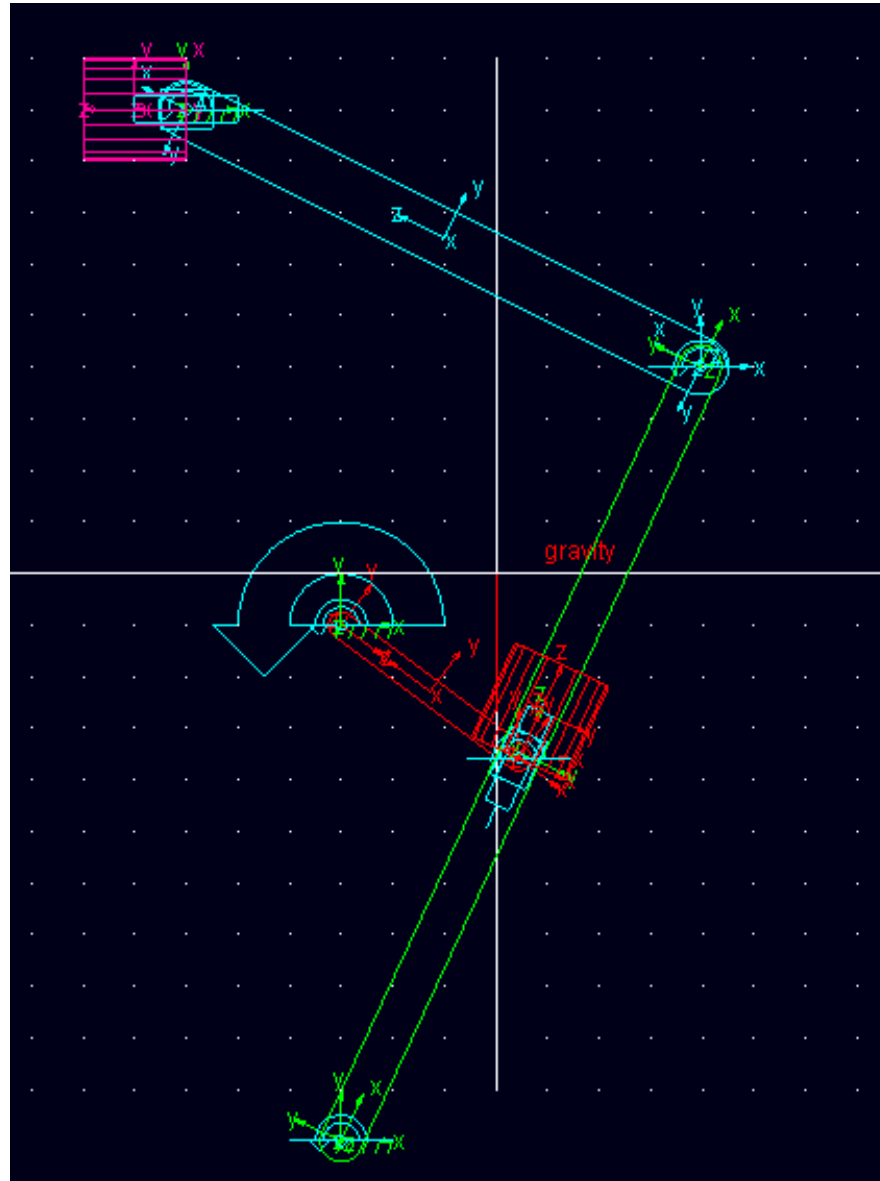
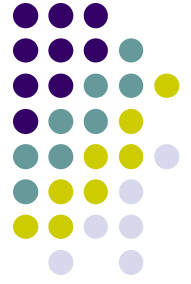


Problem Statement

- Model the quick return Mechanism in ADAMS using following Dimensions
 - $BD = 500 \text{ mm}$
 - Vertical Distance $BF = 500 \text{ mm}$
 - Link Length $(DE) = 827.6472678623 \text{ mm}$
 - Link Length $(BC) = 215.0581316761 \text{ mm}$
 - Link Length $(EF) = 559.0169943749 \text{ mm}$
 - Make both the sliders of Length 100 mm and radius 50 mm
 - The crank (BC) is driven at 500 rpm counterclockwise



Snapshot of ADAMS Model (Fig. 2)





What to Turn in

1. Find the ratio of the time taken for forward stroke to time taken for return stroke and verify that the mechanism is a quick return mechanism
2. Plot the displacement, velocity and acceleration of point F (the tool, Fig. 1)
 - Upload the displacement plot onto the forum under the appropriate topic
3. What is the application of this mechanism? Where is it used?